making a provisional gate electrode from the metal film for gate electrode formation by using a resist which has been hardened and patterned by photolithography and postbaking;

injecting impurities in high concentrations into the semiconductor layer by using as a mask the provisional gate electrode having the resist used to form the provisional gate electrode remaining on the provisional gate electrode;

moving both ends of the resist on the provisional gate electrode in a channel direction toward the center of the resist by etching, thereby exposing surfaces of both ends of the provisional gate electrode in the channel direction;

etching the exposed both ends of the provisional gate electrode while using the remaining resist as a mask; and

injecting impurities in low concentrations into the semiconductor layer while using as a mask a gate electrode completed by etching the both ends of the provisional gate electrode.

2. (Amended) A method for fabricating an LDD thin film transistor, comprising:

forming a semiconductor layer on the substrate;

forming a metal film on the substrate;

coating the metal film with a resist for forming a gate electrode;

processing the resist into a pattern corresponding to a desired gate electrode, the patterned resist having tapered side surfaces each with a projecting lower edge;

forming a provisional gate electrode by etching the metal film while using the resist having tapered end surfaces as a mask;

injecting impurities in high concentrations into the semiconductor layer while using as a mask the provisional gate electrode having the resist with tapered side surfaces thereon;

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etching the resist to remove both end portions in the channel direction of the resist, thereby exposing both ends of the gate electrode in the channel direction;

removing the exposed both ends of the gate electrode while using the remaining resist as a mask; and

injecting the impurities in low concentrations into the semiconductor layer while using as a mask the gate electrode with both ends removed.

3. (Amended) The method for fabricating an LDD thin film transistor in accordance with claim 2, wherein processing the resist further comprises melting with heat the patterned resist and shaping the patterned resist into a hemisphere.

4. (Amended) The method for fabricating an LDD thin film transistor in accordance with claim 2, wherein processing the resist further comprises heating a top portion of the patterned resist on the metal film to shrink a top portion of the patterned resist, said heating at temperatures higher than a highest temperature at which preservation of shape of the resist is ensured.

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5. (Amended) The method for fabricating an LDD thin film transistor in accordance with claim 2, wherein processing the resist further comprises prebaking the patterned resist at lower temperatures than at the lowest temperature at which preservation of shape of the resist is ensured.

6. (Amended) The method for fabricating an LDD thin film transistor in accordance with claim 5, wherein processing the

resist further comprises, in addition to prebaking at low temperature, exposing the resist on the metal film and patterning the resist under a defocused condition by photolithography.

7. (Amended) The method for fabricating an LDD thin film transistor in accordance with claim 6, wherein processing the resist further comprises, in addition to prebaking at low temperature and defocus-exposing exposing the metal film for gate electrode formation with the use of a perforated pattern photomask and a negative photo resist by photolithography.

8. (Amended) The method for fabricating an LDD thin film transistor in accordance with claim 2, wherein processing the resist further comprises removing the tapered end surfaces with an area-proportional chemical reaction of the resist.

9. (Amended) The method for fabricating an LDD thin film transistor in accordance with claim 1, wherein forming a provisional gate electrode further comprises:

applying a first resist having high postbaking temperatures on the metal film for gate electrode formation;

applying a second resist having postbaking temperatures lower than the first resist on the first resist;

exposing the first resist and the second resist by using a mask for electrode formation, and then developing the first resist and the second resist;

postbaking the first resist and the second resist at postbaking temperatures not causing the first resist to deform; and

forming a provisional gate electrode by pattering the metal film for gate electrode formation by using the first resist and the second resist as a mask.

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10. (Amended) The method for fabricating an LDD thin film transistor in accordance with claim 1, wherein forming a provisional gate electrode further comprises prebaking the resist applied on the metal film for gate electrode formation at temperatures lower than the lowest temperature at which preservation in shape of the resist is ensured.

11. (Amended) The method for fabricating an LDD thin film transistor in accordance with claim 10, wherein forming a provisional gate electrode further comprises, in addition to the

prebaking the resist, exposing the resist on the metal film and patterning the resist under a defocused condition by photolithography.

12. (Amended) The method for fabricating an LDD thin film transistor in accordance with claim 11, wherein forming a provisional gate electrode further comprises exposing the metal film for gate electrode formation with the use of a perforated pattern photomask and a negative photo resist by photolithography.

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13. (Amended) The method for fabricating an LDD thin film transistor in accordance with claim 1, further comprising, prior to removing the resist, forming a hemisphere on a surface of the resist located on the provisional gate electrode by melting at a fixed temperature higher than the melting point or softening point of the provisional gate electrode.

14. (Amended) The method for fabricating an LDD thin film transistor in accordance with claim 13, further comprising, prior to forming a hemisphere, selecting a melt flow resist as the resist.

15. (Amended) **The method for fabricating an LDD thin film transistor in accordance with claim 1, further comprising, prior to removing the resist, heat-shrinking a top surface of the resist formed on the gate electrode by heating the top surface at a temperature higher than the highest temperature at which the resist material does not deform, thereby broadening both ends of the resist.**

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16. (Amended) **The method for fabricating an LDD thin film transistor in accordance with claim 1, wherein removing the resist further comprises removing both end portions of the resist in a channel direction by ashing with a gas containing at least one component gas selected from the group of component gasses comprising O_2 and ozone.**

17. (Amended) **A method for fabricating an offset thin film transistor comprising:**

forming a semiconductor layer on the substrate;

forming a metal film on the semiconductor layer;

making a provisional gate electrode from the metal film for gate electrode formation by using a resist;

injecting impurities in high concentrations into the semiconductor layer while using as a mask the provisional gate electrode having the resist used to form the provisional gate electrode remaining on the provisional gate electrode;

processing the resist to form a pair of tilted end surfaces each with a projecting lower edge for forming in a channel direction the provisional gate electrode, before the making a provisional gate electrode or before or after the injecting impurities;

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moving both ends of the resist on the provisional gate electrode in the channel direction toward the center of the resist by etching the resist, thereby exposing both ends of the provisional gate electrode in the channel direction; and

etching exposed both ends of the provisional gate electrode while using the remaining resist as a mask.

18. (Amended) A method for fabricating an LDD thin film transistor comprising:

sequentially stacking a gate electrode, a gate insulator film, and a semiconductor layer onto a front surface of a substrate;

forming a metal film for an impurity injection mask on the semiconductor layer;

forming a resist film on the metal film;

patterning the resist film by exposing from a rear side of the substrate by using the gate electrode as an exposure mask;

patterning the metal film for forming a first impurity injection mask using the patterned resist film as a mask;

injecting impurities in high concentrations from a front side of the substrate while using the first impurity injection mask as a mask;

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treating the patterned resist on the patterned first impurity injection mask to have tilting side surfaces of both ends of the patterned resist in the channel direction towards the center of the resist;

moving both ends of the resist in a channel direction towards the center of the resist, thereby exposing both ends of the first impurity injection mask located under the resist, the resist having the side surfaces of both ends thereof tilted in the channel direction towards the center of the resist;

removing the exposed both ends of the first impurity injection mask while using the remaining resist as a mask to form a second impurity injection mask; and

injecting the impurities in low concentrations from the front side of the substrate while using the second impurity injection mask as a mask.

19. (Amended) A method for fabricating an LDD thin film transistor comprising:

sequentially stacking a gate electrode, a gate insulator film, a semiconductor layer, and a protective insulator film onto a front surface of a substrate;

forming a metal film mask on the semiconductor layer;

forming a resist film on the metal mask;

patterning the resist film by exposing from a rear side of the substrate while using the gate electrode as an exposure mask;

patterning the metal film to form a first impurity injection mask while using the patterned resist film as a mask;

injecting impurities in high concentrations from a front side of the substrate while using the first impurity injection mask as a mask;

tilting side surfaces of both ends of the patterned resist on the patterned first impurity injection mask in the channel direction towards the center of the patterned resist;

moving both ends of the resist in a channel direction towards the center of the resist, thereby exposing both ends of the first impurity injection mask provided under the resist which is so processed that the side surfaces of both ends thereof are tilted in the channel direction towards the center of the resist;

removing exposed both ends of the first impurity injection mask while using the remaining resist as a mask; and

injecting the impurities in low concentrations from the front side of the substrate while using the second impurity injection mask as a mask.

24. (Amended) A top-gate LDD thin film transistor comprising:

a gate electrode having a thickness of not less than 100 nm and not greater than 250 nm; and

insulating reaction product films for coating both ends of the gate electrode in a channel direction, the insulating reaction product films being oxide films of the gate electrode material each

being 0.075 -- 0.5μm long and thick enough to function as a mask at a time of impurity injection.

25. (Amended) A top-gate LDD thin film transistor comprising:

a gate electrode having a thickness of not less than 100 nm and not greater than 250 nm; and

insulating reaction product films for coating both ends of the gate electrode in a channel direction, the insulating reaction product films being oxide films of the gate electrode material each being 0.075 -- 0.5μm long and thick enough to function as a mask at a time of impurity injection, wherein

a semiconductor layer directly below the insulating reaction product films comprises:

an offset region on a gate electrode side; and

a low-concentration impurity-injected region on a side opposite to the gate electrode side.

26. (Amended) A top-gate LDD thin film transistor comprising:

a gate electrode having a thickness of not less than 100 nm and not greater than 250 nm; and

insulating reaction product films for coating both ends of the gate electrode in a channel direction, the insulating reaction product films being oxide films of the gate electrode material each being 0.075 -- 0.5μm long and thick enough to function as a mask at a time of impurity injection, wherein

the LDD thin film transistor comprises a semiconductor layer located directly below the insulating reaction product films, the semiconductor layer having a low-concentration impurity intruded region due to heat diffusion or scattering on the gate electrode side; and

a low-concentration impurity injected region on a side opposite to the gate electrode side.

28. (Amended) A top-gate LDD thin film transistor comprising:

a gate electrode having a thickness of not less than 100 nm and not greater than 250 nm; and

a semiconductor layer having, at each end in a channel direction under the gate electrode, an offset region on the gate electrode side and a low-concentration impurity injected region on a side opposite to the gate electrode side in a range having a

length of 0.075 -- 0.5μm on both ends of the channel region provided under the gate electrode in the channel direction.

29. (Amended) A top-gate LDD thin film transistor comprising:

a gate electrode having a thickness of not less than 100 nm and not greater than 250 nm; and

a semiconductor layer having, at each end in a channel direction under the gate electrode, a low-concentration impurity intruded regions due to heat diffusion or scattering on the gate electrode side and a low-concentration impurity injected region on a side opposite to the gate electrode side in a range having a length of 0.075 -- 0.5μm on both ends of the channel region provided under the gate electrode in the channel direction.

32. (Amended) The top-gate LDD thin film transistor in accordance with claim 30, wherein the semiconductor layer is a polysilicon layer.

33. (Amended) The thin film transistor in accordance with claim 32, wherein the electric resistance in said low-concentration impurity injected region is 20 kΩ/□ and 100 kΩ/□.

34. (Amended) **A method of fabricating an LDD thin film transistor comprising:**

injecting impurities in low concentrations while using as a mask a gate electrode made from a metal film of 300 -- 500 nm-thick;

forming reaction product films of 0.075 -- 0.5μm-long oxide films of the gate electrode material metal at both ends of the gate electrode in a channel direction by applying a reactive fluid to the gate electrode; and

injecting the impurities in high concentrations while using as a mask the gate electrode having the reaction product films at both ends thereof in the channel direction provided in the reaction product film-forming step.

35. (Amended) **The method of fabricating an LDD thin film transistor in accordance with claim 34, wherein forming reaction product films oxidizes with heat the gate electrode material metal to form a thermal oxide film.**

36. (Amended) **The method of fabricating an LDD thin film transistor in accordance with claim 35 further comprising selecting**

an Mo-W alloy having Mo content of 15 -- 50 atom% as a material of the gate electrode.

37. (Amended) A method of fabricating an LDD thin film transistor, comprising:

injecting impurities in low concentrations into a semiconductor layer while using as a mask a gate electrode made from a metal film of 300 -- 500 nm-thick;

forming reaction product films of 0.075 -- 0.5μm long oxide films of the gate electrode material metal at both ends of the gate electrode in a channel direction by applying a reactive fluid to the gate electrode;

injecting impurities in high concentrations while using as a mask the gate electrode having the reaction product films at both ends thereof in the channel direction provided in forming reaction product films; and

a reaction product film-removing step of removing the reaction product films of the oxide films of the metal in both ends of the gate electrode in the channel direction formed in forming reaction product films.

38. (Amended) A method of fabricating an LDD thin film transistor, comprising:

forming reaction product films of 0.075 -- 0.5μm long oxide films of the gate electrode material metal at both ends of the gate electrode in a channel direction by applying a reactive fluid to the gate electrode made of a metal film of 300 -- 500 nm-thick;

injecting impurities in high concentrations while using as a mask the gate electrode having the reaction product films at both ends thereof in the channel direction provided in forming reaction product films;

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removing the reaction product films of the oxide films of the metal in both ends of the gate electrode in the channel direction formed in forming reaction product films; and

injecting impurities in low concentrations while using as a mask the gate electrode from which the reaction product films have been removed.

39. (Amended) The method of fabricating an LDD thin film transistor in accordance with claim 37, wherein forming reaction product films further comprises forming a thermal oxide film as the

reaction product film by oxidizing the gate electrode material metal with heat.

41. (Amended) A method of fabricating an LDD thin film transistor, comprising:

injecting impurities in low concentrations while using as a mask a gate electrode made of a metal film of 300 -- 500 nm thick;

forming reaction product films of 0.075 -- 0.5μm-long oxide films of the gate electrode material metal at both ends of the gate electrode in a channel direction by applying a reactive fluid to the gate electrode;

injecting impurities in high concentrations while using as a mask the gate electrode having the reaction product films at both ends thereof in the channel direction provided in the reaction product film forming step; and

returning the reaction product films of oxide films of the metal in both ends of the gate electrode in a channel direction formed in forming reaction product films to an original metal through a reverse reaction comprising reduction.

42. (Amended) The method of fabricating an LDD thin film transistor in accordance with claim 41, wherein forming reaction product films further comprises forming a thermal oxide film as the reaction product film by oxidizing the gate electrode material metal with heat.

43. (Amended) The method of fabricating an LDD thin film transistor in accordance with claim 41, wherein the gate electrode is made of an Mo-W alloy having Mo content of 15 -- 50 atom%.

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44. (Amended) A method of fabricating an LDD thin film transistor, comprising:

forming 0.05 -- 0.5μm-thick oxide films of the gate electrode material metal at both ends of a gate electrode in the channel direction by partly oxidizing the gate electrode which is made of a 300 -- 500 nm-thick metal film; and

injecting impurities at high voltages from both sides in the channel direction at the same time or in two installments while using as a mask the gate electrode provided with the oxide films.

45. (Amended) A method of fabricating an LDD thin film transistor, comprising:

forming 0.05 -- 0.5μm-long oxide films at both ends of a gate electrode in the channel direction by partly oxidizing the gate electrode which is made of a 300 -- 500 nm-thick metal film;

injecting impurities at high voltages while using as a mask the gate electrode provided with the oxide films; and

further dispersing the impurities which have been injected in injecting impurities at high voltages and diffused towards the center of the gate electrode in the channel direction when a semiconductor is heat-processed after impurity injection or when the oxide films formed in both ends of the gate electrode are heated removed or reduced.

46. (Amended) A method of fabricating an offset thin film transistor, comprising:

forming reaction product films of oxide films of a 0.075 -- 0.5μm-long gate electrode material metal at both ends of the gate electrode in a channel direction by thermal oxidizing the gate electrode which is made of a 300 -- 500 nm-long metal film;

injecting impurities to the semiconductor layer in high concentrations while using as a mask the gate electrode provided with the reaction product films; and

removing the metal oxide films in both ends of the gate electrode in the channel direction after the impurity-injecting step.

52. (Amended) The method of fabricating an offset thin film transistor in accordance with claim 46, wherein semiconductor material of the offset thin film transistor is polysilicon.

53. (Amended) The method for fabricating an LDD thin film transistor in accordance with claim 2, wherein etching the resist further comprises removing both end portions of the resist in the channel direction are removed by means of ashing with a gas containing at least one component gas selected from the group of component gasses comprising O_2 and ozone.

54. (Amended) The method of fabricating an LDD thin film transistor in accordance with claim 38, wherein forming reaction product films further comprises forming a thermal oxide film as

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the reaction product film by oxidizing the gate electrode material metal with heat.